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9	BRS	L9	1	1 and 7	USPA T	2004/05/1 2 15:47			0
10	BRS	L10	19	4 same variable\$1	USPA T	2004/05/1 2 15:48			0
11	BRS	L12	0	1 and 11	USPA T	2004/05/1 2 15:48			0
12	BRS	L11	4	10 same sequen\$6	USPA T	2004/05/1 2 15:50			0
13	BRS	L13	21	4 same sequen\$6	USPA T	2004/05/1 2 15:50			0
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4	IS&R	L4	1844	(382/232,233,244,246, 247).CCLS.	USPA T	2004/05/14 10:27			0
5	IS&R	L5	195	(341/107).CCLS.	USPA T	2004/05/14 10:27			0
6	BRS	L6	42	2 and 4	USPA T	2004/05/14 10:27			0
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**1 An efficient JPEG2000 tier-1 coder hardware implementation for real time video processing**
*Schumacher, P.R.;*

 Consumer Electronics, IEEE Transactions on , Volume: 49 , Issue: 4 , Nov. 2000  
 Pages:780 - 786

[\[Abstract\]](#)    [\[PDF Full-Text \(594 KB\)\]](#)    **IEEE JNL**
**2 A high-performance JPEG2000 architecture**
*Andra, K.; Chakrabarti, C.; Acharya, T.;*

 Circuits and Systems for Video Technology, IEEE Transactions on , Volume: 13 , Issue: 3 , March 2003  
 Pages:209 - 218

[\[Abstract\]](#)    [\[PDF Full-Text \(424 KB\)\]](#)    **IEEE JNL**
**3 2D-pattern matching image and video compression: theory, algorithm and experiments**
*Alzina, M.; Szpankowski, W.; Grama, A.;*

 Image Processing, IEEE Transactions on , Volume: 11 , Issue: 3 , March 2002  
 Pages:318 - 331

[\[Abstract\]](#)    [\[PDF Full-Text \(501 KB\)\]](#)    **IEEE JNL**
**4 MPEG-4 image transmission using MAP source-controlled channel decoding**
*Van Dyck, R.E.;*

 Selected Areas in Communications, IEEE Journal on , Volume: 18 , Issue: 6 , 2000  
 Pages:1087 - 1098

[\[Abstract\]](#) [\[PDF Full-Text \(216 KB\)\]](#) IEEE JNL

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**5 Image compression via joint statistical characterization in the wave domain**

*Buccigrossi, R.W.; Simoncelli, E.P.;*

Image Processing, IEEE Transactions on , Volume: 8 , Issue: 12 , Dec. 1999  
Pages:1688 - 1701

[\[Abstract\]](#) [\[PDF Full-Text \(1620 KB\)\]](#) IEEE JNL

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**6 Universal trellis coded quantization**

*Kasner, J.H.; Marcellin, M.W.; Hunt, B.R.;*

Image Processing, IEEE Transactions on , Volume: 8 , Issue: 12 , Dec. 1999  
Pages:1677 - 1687

[\[Abstract\]](#) [\[PDF Full-Text \(2408 KB\)\]](#) IEEE JNL

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**7 Efficient homophonic coding**

*Ryabko, B.; Fionov, A.;*

Information Theory, IEEE Transactions on , Volume: 45 , Issue: 6 , Sept. 1999  
Pages:2083 - 2091

[\[Abstract\]](#) [\[PDF Full-Text \(296 KB\)\]](#) IEEE JNL

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**8 Efficient digital-to-analog encoding**

*Gibson, M.A.; Bruck, J.;*

Information Theory, IEEE Transactions on , Volume: 45 , Issue: 5 , July 1999  
Pages:1551 - 1554

[\[Abstract\]](#) [\[PDF Full-Text \(88 KB\)\]](#) IEEE JNL

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**9 Variable-rate trellis source encoding**

*En-hui Yang; Zhen Zhang;*

Information Theory, IEEE Transactions on , Volume: 45 , Issue: 2 , March 1999  
Pages:586 - 608

[\[Abstract\]](#) [\[PDF Full-Text \(1424 KB\)\]](#) IEEE JNL

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**10 Real-time implementation of the MPEG-2 audio codec on a DSP**

*Jing Chen; Heng-Ming Tai;*

Consumer Electronics, IEEE Transactions on , Volume: 44 , Issue: 3 , Aug. 1999  
Pages:866 - 871

[\[Abstract\]](#) [\[PDF Full-Text \(512 KB\)\]](#) IEEE JNL

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**11 H.263: video coding for low-bit-rate communication**

*Rijkse, K.;*

Communications Magazine, IEEE , Volume: 34 , Issue: 12 , Dec. 1996  
Pages:42 - 45

[\[Abstract\]](#) [\[PDF Full-Text \(984 KB\)\]](#) IEEE JNL

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**12 Differentiation applied to lossless compression of medical images***Nijim, Y.W.; Stearns, S.D.; Mikhael, W.B.;*

Medical Imaging, IEEE Transactions on , Volume: 15 , Issue: 4 , Aug. 1996

Pages:555 - 559

[\[Abstract\]](#) [\[PDF Full-Text \(656 KB\)\]](#) IEEE JNL**13 Block arithmetic coding for source compression***Boncelet, C.G., Jr.;*

Information Theory, IEEE Transactions on , Volume: 39 , Issue: 5 , Sept. 199

Pages:1546 - 1554

[\[Abstract\]](#) [\[PDF Full-Text \(736 KB\)\]](#) IEEE JNL**14 A VLSI chip set for high-speed lossless data compression***Venbrux, J.; Yeh, P.-s.; Liu, M.N.;*

Circuits and Systems for Video Technology, IEEE Transactions on , Volume:

2 , Issue: 4 , Dec. 1992

Pages:381 - 391

[\[Abstract\]](#) [\[PDF Full-Text \(1112 KB\)\]](#) IEEE JNL**15 Protecting data compression: Arithmetic coding***Redinbo, G.R.;*Computers and Digital Techniques, IEE Proceedings- , Volume: 147 , Issue: 4  
2000

Pages:221 - 228

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### 1 [Is Huffman coding dead? \(extended abstract\)](#)

Abraham Bookstein, Shmuel T. Klein, Timo Raita

 July 1993 **Proceedings of the 16th annual international ACM SIGIR conference on Research and development in information retrieval**

 Full text available: [pdf\(734.79 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

### 2 [Compression, information theory, and grammars: a unified approach](#)

Abraham Bookstein, Shmuel T. Klein

 January 1990 **ACM Transactions on Information Systems (TOIS)**, Volume 8 Issue 1

 Full text available: [pdf\(1.80 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Text compression is of considerable theoretical and practical interest. It is, for example, becoming increasingly important for satisfying the requirements of fitting a large database onto a single CD-ROM. Many of the compression techniques discussed in the literature are model based. We here propose the notion of a formal grammar as a flexible model of text generation that encompasses most of the models offered before as well as, in principle, extending the possibility of compression to a ...

### 3 [Compression of indexes with full positional information in very large text databases](#)

Gordon Linoff, Craig Stanfill

 July 1993 **Proceedings of the 16th annual international ACM SIGIR conference on Research and development in information retrieval**



 Full text available: [pdf\(690.17 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper describes a combination of compression methods which may be used to reduce the size of inverted indexes for very large text databases. These methods are Prefix Omission, Run-Length Encoding, and a novel family of numeric representations called n-s coding. Using these compression methods on two different text sources (the King James Version of the Bible and a sample of Wall Street Journal Stories), the compressed index occupies less than 40% of the size of the ori ...

### 4 [A compression-based algorithm for Chinese word segmentation](#)

W. J. Teahan, Rodger McNab, Yingying Wen, Ian H. Witten

 September 2000 **Computational Linguistics**, Volume 26 Issue 3

Full text available:  [pdf\(1.34 MB\)](#)  Additional Information: [full citation](#), [abstract](#), [references](#)  
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Chinese is written without using spaces or other word delimiters. Although a text may be thought of as a corresponding sequence of words, there is considerable ambiguity in the placement of boundaries. Interpreting a text as a sequence of words is beneficial for some information retrieval and storage tasks: for example, fulltext search, word-based compression, and keyphrase extraction. We describe a scheme that infers appropriate positions for word boundaries using an adaptive language model that ...

## 5 Arithmetic coding for data compression

Ian H. Witten, Radford M. Neal, John G. Cleary

June 1987 **Communications of the ACM**, Volume 30 Issue 6


Full text available:  [pdf\(1.62 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The state of the art in data compression is arithmetic coding, not the better-known Huffman method. Arithmetic coding gives greater compression, is faster for adaptive models, and clearly separates the model from the channel encoding.

## 6 Modeling word occurrences for the compression of concordances

A. Bookstein, S. T. Klein, T. Raita

July 1997 **ACM Transactions on Information Systems (TOIS)**, Volume 15 Issue 3

Full text available:  [pdf\(630.99 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#), [review](#)

An earlier paper developed a procedure for compressing concordances, assuming that all elements occurred independently. The models introduced in that paper are extended here to take the possibility of clustering into account. The concordance is conceptualized as a set of bitmaps, in which the bit locations represent documents, and the one-bits represent the occurrence of given terms. Hidden Markov Models (HMM's) are used to describe the clustering of the one-bits. However, for computational ...

**Keywords:** classification of graph nodes, concordance organization, concordance storage, graph structure

## 7 Generalized predictive TCQ of speech

Michael W. Marcellin, Thomas R. Fischer

January 1990 **Communications of the ACM**, Volume 33 Issue 1

Full text available:  [pdf\(1.00 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Trellis coded quantization (TCQ) is incorporated into a noise feedback coding structure for encoding sampled speech. The effects of varying the encoding delay and the number of symbols released per trace-back on system performance and complexity are investigated.

**Keywords:** Speech coding, trellis coded quantization, trellis coding

## 8 Picture Processing by Computer

Azriel Rosenfeld

September 1969 **ACM Computing Surveys (CSUR)**, Volume 1 Issue 3

Full text available:  [pdf\(2.69 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



**9 Arithmetic coding revisited**

Alistair Moffat, Radford M. Neal, Ian H. Witten

July 1998 **ACM Transactions on Information Systems (TOIS)**, Volume 16 Issue 3Full text available:  [pdf\(487.26 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Over the last decade, arithmetic coding has emerged as an important compression tool. It is now the method of choice for adaptive coding on multsymbol alphabets because of its speed, low storage requirements, and effectiveness of compression. This article describes a new implementation of arithmetic coding that incorporates several improvements over a widely used earlier version by Witten, Neal, and Cleary, which has become a de facto standard. These improvements include f ...

**Keywords:** approximate coding, arithmetic coding, text compression, word-based model

**10 Data compression**

Debra A. Lelewer, Daniel S. Hirschberg

September 1987 **ACM Computing Surveys (CSUR)**, Volume 19 Issue 3Full text available:  [pdf\(3.61 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

This paper surveys a variety of data compression methods spanning almost 40 years of research, from the work of Shannon, Fano, and Huffman in the late 1940s to a technique developed in 1986. The aim of data compression is to reduce redundancy in stored or communicated data, thus increasing effective data density. Data compression has important application in the areas of file storage and distributed systems. Concepts from information theory as they relate to the goals and evaluation of data ...

**11 A scheme for data compression in supercomputers**

M. A. Bassiouni, N. Ranganathan, A. Mukherjee

November 1988 **Proceedings of the 1988 ACM/IEEE conference on Supercomputing**Full text available:  [pdf\(627.38 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

There is a growing recognition of the importance of efficient coding and data compression schemes in supercomputing centers and in networks of high-speed computing machines. Recently, there has been a considerable interest in arithmetic coding as a promising technique for reducing the cost of data storage and transmission. In this paper, we present a compression algorithm that is tailored to utilize the enormous speed and memory size of supercomputers and which utilizes an enhanced ...

**12 Comparative analysis of LISP and APL2**

A. Kaneko


December 1987 **ACM SIGAPL APL Quote Quad , Proceedings of the international conference on APL**, Volume 18 Issue 2Full text available:  [pdf\(808.91 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

LISP and APL2 were both born in 1960's and they have the similar syntax which is called function type. The main users of LISP were in the universities and the applications were linguistics or formula processing in mathematics. On the other hand APL was used in the companies and many of their applications were in the business environment such as business planning or reporting. Traditional APL provided user intuitive expressions, but it was rather weak in hand ...

**13 An adaptive dependency source model for data compression**

David M. Abrahamson

February 1989 **Communications of the ACM**, Volume 32 Issue 1

Full text available:  [pdf\(534.71 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

By dynamically recoding data on the basis of current intercharacter probabilities, the entropy of encoded messages can be significantly reduced.

#### 14 Optimal prefetching via data compression

Jeffrey Scott Vitter, P. Krishnan

September 1996 **Journal of the ACM (JACM)**, Volume 43 Issue 5

Full text available:  [pdf\(564.53 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)


Caching and prefetching are important mechanisms for speeding up access time to data on secondary storage. Recent work in competitive online algorithms has uncovered several promising new algorithms for caching. In this paper, we apply a form of the competitive philosophy for the first time to the problem of prefetching to develop an optimal universal prefetcher in terms of fault rate, with particular applications to large-scale databases and hypertext systems. Our prediction algorithms wit ...

**Keywords:** Markov source, caching, competitive analysis, data compression, databases, fault rate, hypertext, prediction, prefetching, secondary stage, universal prefetcher

#### 15 Session P12: approximation and compression: Real-time decompression and visualization of animated volume data

Stefan Guthe, Wolfgang Straßer

October 2001 **Proceedings of the conference on Visualization '01**

Full text available:  [pdf\(1.52 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)


Interactive exploration of animated volume data is required by many application, but the huge amount of computational time and storage space needed for rendering does not allow the visualization of animated volumes by now. In this paper we introduce an algorithm running at interactive frame rates using 3d wavelet transforms that allows for any wavelet, motion compensation techniques and various encoding schemes of the resulting wavelet coefficients to be used. We analyze different families and o ...

**Keywords:** compression for visualization, time critical visualization, volume rendering

#### 16 Data compression with finite windows

E. R. Fiala, D. H. Greene

April 1989 **Communications of the ACM**, Volume 32 Issue 4

Full text available:  [pdf\(1.89 MB\)](#)


Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Several methods are presented for adaptive, invertible data compression in the style of Lempel's and Ziv's first textual substitution proposal. For the first two methods, the article describes modifications of McCreight's suffix tree data structure that support cyclic maintenance of a window on the most recent source characters. A percolating update is used to keep node positions within the window, and the updating process is shown to have constant amortized cost. Other methods explore the ...

#### 17 Speech synthesis for computer assisted instruction: The MISS system and its applications

William R. Sanders, Gerard V. Benbassat, Robert L. Smith

February 1976 **Proceedings of the ACM SIGCSE-SIGCUE technical symposium on Computer science and education**, Volume 2 , 8 Issue SI , 1


Full text available:  pdf(1.03 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The Institute for Mathematical Studies in the Social Sciences at Stanford (IMSSS) has developed a synthesis system, MISS (Microprogrammed Intoned Speech Synthesizer), designed to test the effectiveness of computer-generated speech in the context of complex CAI programs. No one method of computer controlled speech production is completely satisfactory for all the uses of computer-assisted instruction (CAI). The choice of synthesis method is strongly related to the kinds of curriculums and in ...

# 18 Coding polygon meshes as compressable ASCII

Martin Isenburg, Jack Snoeyink

February 2002 **Proceeding of the seventh international conference on 3D Web technology**

Full text available:  pdf(472.45 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Because of the convenience of a text-based format 3D content is often published in form of a gzipped file that contains an ASCII description of the scene graph. While compressed image, audio, and video data is kept in separate binary files, polygonal data is usually included uncompressed into the ASCII description, as there is no widely-accepted standard for compressed polygon meshes. In this paper we show how to incorporate compression of polygonal data into a purely text-based scene graph descr ...

**Keywords:** ASCII scene descriptions, fast and extremely light-weight decoding, mesh compression, non-manifold mesh encoding

# 19 On the containment and equivalence of database queries with linear constraints (extended abstract)

Oscar H. Ibarra, Jianwen Su


May 1997 **Proceedings of the sixteenth ACM SIGACT-SIGMOD-SIGART symposium on Principles of database systems**

Full text available:  pdf(1.70 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

# 20 Application of splay trees to data compression

D. W. Jones

August 1988 **Communications of the ACM**, Volume 31 Issue 8

Full text available:  pdf(1.22 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The splay-prefix algorithm is one of the simplest and fastest adaptive data compression algorithms based on the use of a prefix code. The data structures used in the splay-prefix algorithm can also be applied to arithmetic data compression. Applications of these algorithms to encryption and image processing are suggested.

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